

# Prototyping and flight qualification of high-reflectivity broadband mirror coatings for the next generation of space observatories

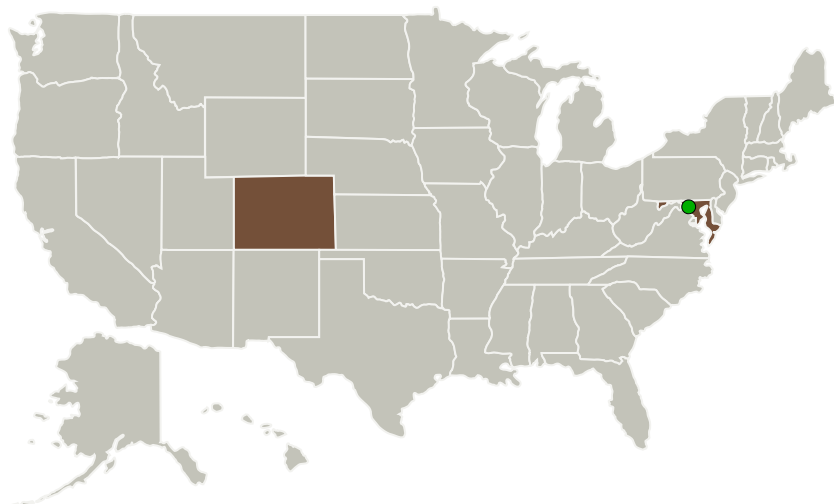
Completed Technology Project (2015 - 2017)



## Project Introduction

This proposal for the 2014 Nancy Grace Roman Technology Fellowship in Astrophysics aims to develop new broadband enhanced lithium fluoride protected aluminum mirror coatings with ~90% reflectivity from the far ultraviolet to the near infrared. We describe the technical and scientific justification for this work, and lay out a four-year development effort plan to raise the Technology Readiness Level of these new coatings to TRL 6, thus qualifying them for future space missions. The end product will be a fully assembled and environmentally tested telescope with new, broadband reflective coatings that can be integrated into a suborbital payload for science operations. This proposal will satisfy a priority 1 technology goal of the Cosmic Origins program, and enable a wider bandpass for the next large UV-Optical-IR observatory. This effort fulfills the goals of the RTF program by giving an early career researcher the opportunity to develop a technology with the potential to enable major scientific breakthroughs, and thus develop the skills to become a PI of a future astrophysics mission.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Science Mission Directorate (SMD)

### Responsible Program:

Nancy Grace Roman Technology Fellowship

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Organizations Performing Work	Role	Type	Location
● Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland
University of Colorado Boulder	Supporting Organization	Academia	Boulder, Colorado

Primary U.S. Work Locations	
Colorado	Maryland

## Project Management

### Program Director:

Mario R Perez

### Program Manager:

Mario R Perez

### Principal Investigator:

Brian Fleming

### Co-Investigators:

Manuel A Quijada

Karen J Springfield

## Technology Areas

### Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.1 Materials
    - └ TX12.1.5 Coatings

## Target Destination

Outside the Solar System